

## **Abstract of the Disclosure**

A highly sensitive accelerometer for determining the acceleration of a structure includes a mass within a housing rotationally supported by a hinge and opposing support members. The support members are alternately wound around a fixed mandrel and the mass in a pendulum arrangement. At least a portion of one of the support members comprises a transducer capable measuring the rotation of the mass within the housing. An embodiment of the invention employs optical fiber coils as support members for use in interferometric sensing processes. Arrays of such interferometer based accelerometers maybe multiplexed using WDM or similar methods.

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